

Engaging patients in managing their cardiovascular health

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Psychological factors play a major part in the impact, course, and treatment of cardiovascular disease. Patients' cognitions and emotions feed into their responses to their illness and its treatments and can, for example, affect the likelihood of attendance at cardiac rehabilitation programmes. It is important to view the rehabilitation process from the perspective of the patient and to examine and assess patients' beliefs. Self management and self efficacy need to be encouraged. Depression and anxiety are common after myocardial infarction and can influence outcome. A patient's mood state should be assessed routinely and regularly.



Helping patients to change their behaviour is an important part of managing cardiovascular disease. This requires an understanding of the factors mediating behaviour change, which include:

- cognitions/beliefs—how people think about their illness and treatments
- coping—what they do to deal with their illness
- emotions—how they feel
- social factors—family, friends and social support.

COGNITIONS/BELIEFS

Health professionals often assume that patients will accept and understand their opinions and interpretations. But patients are not passive repositories of information. Instead, they actively construct models of their illness, treatment, and recovery and these influence their behaviour and emotions. In other words, what people believe about their illness and its treatment drives their behaviour. This explains why some patients do not modify their behaviour along the lines recommended by health professionals and why some do not attend cardiac rehabilitation.

Patients' beliefs about the three different kinds of major treatment for coronary heart disease—medication, angioplasty, and coronary artery bypass graft surgery—were explored in a recent study at University College London (unpublished data). These treatment options vary in the level of "drama" associated with their implementation: medication is associated with minimal drama, angioplasty with moderate drama, and bypass surgery with high drama. Beliefs about four aspects of these different treatments were assessed: disease control (the patient's beliefs

of the positive benefits of the treatments in arresting coronary artery disease), emotional impact (the patient's trepidation at undergoing treatment and concerns regarding the nature of the treatment), decision satisfaction (evaluation of the decision process for choosing the treatment), and cure (beliefs regarding the ability of the treatment to return the patient to their normal life). In terms of disease control, this belief was higher for surgery than for angioplasty. Emotional impact, not surprisingly, was greatest for surgery. For cure, there were equal beliefs for angioplasty and bypass surgery, and this was greater than for medication, while patients were more satisfied if it was decided that they were to have bypass surgery.

Attendance at cardiac rehabilitation can be used to illustrate the effects of illness beliefs. There is good evidence that attenders have greater beliefs that their heart disease can be cured or controlled.^{1,2} People who do not attend tend to believe that nothing can be done about their illness. Attenders are also more likely to believe that they were responsible for their coronary heart disease—that it was caused by their lifestyle and the choices they made.

Whitmarsh and colleagues³ investigated 93 patients after myocardial infarction in the week before the start of a cardiac rehabilitation course to determine whether there were variables that could predict attendance at rehabilitation. Illness cognitions, coping, and mood were assessed. Attenders had a higher set of beliefs about the nature of their illness, they perceived a greater number of symptoms, and believed the consequences of their disease were more severe, and they used a style of coping which revolved around them analysing the situation and making a decision about what to do (fig 1). These are all behaviours and cognitions in which health care professionals are able to engage patients.

On the assumption that patients' cognitions drive their behaviour, is it possible to change these cognitions? A study carried out in New Zealand⁴ evaluated the effect of a simple intervention while patients were in hospital following a myocardial infarction. The control group received standard care while the intervention group had standard care plus three brief visits by a psychologist. The first visit focused on discussion of the causes of the myocardial infarction, the second visit focused on what the patient could do to minimise future risk, and the third visit aimed to devise an action plan. At discharge, there were significant differences between the intervention and control groups in patients' beliefs about the consequences of their myocardial infarction, how long it would last, and whether they could control the future course of their coronary heart disease. There was no significant difference in symptoms. Three

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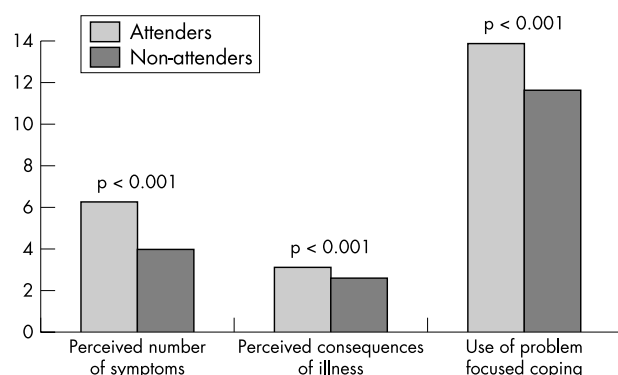


Figure 1 Predictors of attendance at cardiac rehabilitation after myocardial infarction. Variables were assessed using the illness perceptions questionnaire for perceived symptoms (scoring range 0–12) and perceived consequences (scoring range 1–5), and the coping orientation to problems experienced (COPE) for problem focused coping (scoring range 4–16) in 93 patients after discharge from hospital, just before they were due to attend cardiac rehabilitation.³

months later, significant differences were still apparent between the groups in how long they believed the illness would last and their degree of control. As regards the impact of this change in patient cognitions, compared with the control group the intervention group patients felt that the quality of information that they had been given was better, they understood their problem significantly better, they were more prepared, and they were more likely to intend to attend rehabilitation. Importantly, this simple intervention also had an effect on return to work. Patients who felt that their cardiac disease did not have serious consequences were, not surprisingly, more likely to return to work and those that believed their illness would not last too long were also more likely to return to work. It should be emphasised that there is no need for this type of intervention to be made by a psychologist as any suitably trained health care professional could equally well deliver these types of interventions.

Patients' beliefs about the cause of their myocardial infarction also affect the likelihood of behaviour change. The most commonly held view is that their heart attack was caused by stress. Other common beliefs are that lifestyle or heredity were responsible. People who believe that lifestyle caused their myocardial infarction are most likely to make and persist in behaviour changes. Those who believe it was due to heredity are less likely to see any point in making changes. The general point is that by influencing patients' beliefs about their coronary heart disease, health care professionals can increase the chance of behaviour change.

At the extreme end of cognitions following myocardial infarction is cardiac invalidism where patients believe that any form of activity will provoke another attack. These patients avoid exertion and consequently have a reduction in their fitness, resulting in symptoms of lack of fitness which they interpret as evidence of cardiac problems, leading to further limitations of their activity.

SELF-EFFICACY

A person's behaviour is governed by expectancies and incentives. One of the incentives is the subjective importance of an outcome. Expectancies can be seen as situation expectancies (for example, that being overweight will be a trigger for disease), outcome expectancies ("eating more fibre and less fat will reduce my weight") and self efficacy expectancies ("I am capable of eating more fibre and resisting fatty foods"). Self efficacy expectancies—belief in one's competence to perform a particular action to attain a

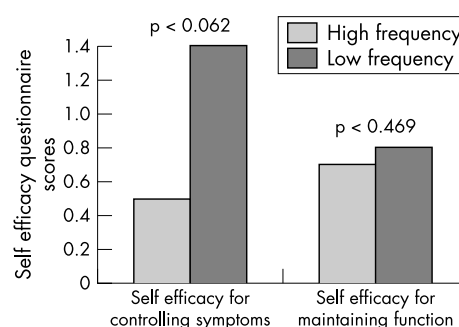


Figure 2 Comparison of high and low frequency exercise programmes on change in self efficacy during cardiac rehabilitation.⁵

desired outcome—are important in dealing with patients. Patients need to be persuaded that they are capable of eating more fibre and resisting fatty foods.

People can acquire self efficacy in several ways, including direct experience, indirect or vicarious experience (seeing someone else do it), and verbal persuasion, this last method being the approach often used by health professionals. Many studies have shown that increasing people's confidence in their ability to perform certain behaviours leads to a positive change in their behaviour—for example, in coping with stress, tolerating pain, smoking cessation, and adherence to exercise. In cardiac rehabilitation, evidence exists that increases in self efficacy predict return to work, increased physical functioning, use of pain medication, and home exercise.

Rehabilitation programmes often include strategies designed to increase self efficacy, either implicitly or explicitly. Such strategies include providing information, showing patients how to improve performance by giving them food models, social modelling, and the use of verbal persuasion. However, these programmes occupy a brief period in people's lives and improvement in self efficacy can be undermined by an overprotective spouse or partner. The challenge for health professionals is to get patients to generalise their behaviour and to counteract the oppositional messages that come from outside influences, not the least the media and the fast food outlets.

Increasing the intensity of the intervention is not necessarily the answer. There is a danger that more intensive interventions might actually reduce self efficacy by increasing patient dependency—that is, making them less self reliant. For example, Berkhuisen and colleagues⁵ compared a low frequency exercise programme (twice a week) and a high frequency exercise programme (10 times a week). The low frequency programme led to greater increase in self efficacy in controlling symptoms and maintaining function (fig 2). By contrast, the high intensity programme was less effective in giving people confidence that they could act by themselves, presumably because they had to return to the hospital more often.

One objective, particularly with the huge growth in diabetes and coronary heart disease associated with the aging population, has to be to learn how to get patients to take more responsibility.

MOOD

A patient's mood state is another influence on behaviour. Depression and depressive symptoms are common following a myocardial infarction. Studies have shown that major depression occurs in 15–23% of patients, which is three times higher than in the population generally. There is also

evidence that major depression persists in around 95% of patients at six months and in 70% at 12 months.

Depression appears to be an independent predictor of mortality after myocardial infarction, in heart failure, and also after coronary bypass surgery. Depression following myocardial infarction is associated with three to four times increased cardiac mortality. Higher levels of depression are also associated with less behaviour change and with non-attendance at rehabilitation.

Ziegelstein⁶ investigated the association between depression and behaviour change. Symptoms of depression were assessed in hospital after myocardial infarction and patients were then interviewed four months later to measure self reported adherence to behaviour and lifestyle recommendations aimed at modifying cardiac risk. Those with depression reported lower adherence to a low fat diet, regular exercise, reducing stress, and increasing social support. In another study, involving 1902 patients referred to cardiac rehabilitation, 13% of patients defaulted on the programme and the presence of depression at the start of the programme was the main predictor of non-attendance.⁷

Attempts to reduce depression have had mixed success. One study showed that individuals who had reductions in depression after rehabilitation had lower mortality over the following nine years.⁸ However, the recently published ENRICHD study of 2481 patients showed no effect on survival from an intensive intervention designed to reduce depression and low social support post myocardial infarction.⁹ These results are important in that they indicate that there is a need to re-evaluate how to reduce depression.

A recent meta-analysis of 37 studies¹⁰ showed that reduction in risk factors, improved behaviours, and reductions in depressed mood were associated with a 34% reduction in cardiac mortality and a 29% reduction in recurrence of myocardial infarction.

Anxiety is the earliest and most intense psychological response to myocardial infarction. As many as 60% of patients show high anxiety and this persists in around 40% to 12 months. Persisting anxiety is associated with recurrent cardiac events. The mechanism for this is unclear but it has been suggested that it is linked to physiological response to stress. It might also be related to the fact that anxiety is a barrier for behaviour change, particularly exercise. In some studies anxiety has been associated with increased mortality and with reduced quality of life post-myocardial infarction. Interestingly, there is some evidence that higher levels of anxiety tend to be associated with increased attendance at cardiac rehabilitation—but our objective should not be to increase anxiety to encourage attendance.

There is some evidence of efficacy in attempts to reduce anxiety by reducing uncertainty and providing support but this is limited.

ISSUES TO BE TACKLED

Questions that remain to be tackled regarding cardiac rehabilitation include the following:

- Data are mainly based on acute myocardial infarction patients—to what extent can they be generalised to other cardiac groups?
- Is a revascularisation procedure a sufficient motivator to trigger lifestyle change?
- By what mechanisms do differing cardiac rehabilitation interventions work?
- Are functional and symptomatic gains sustained in the longer term?
- Are there sex differences in the benefits of the interventions?

In addition, there needs to be debate about how to help patients who show high levels of depression or anxiety—this group is less likely to benefit from psychosocial intervention and ways need to be found to screen and assess them and intervene appropriately.

Tackling these issues requires coordination and standardisation of personnel and information provision throughout the phases of cardiac rehabilitation. It is important to formulate a theory driven cardiac rehabilitation programme, to view the cardiac rehabilitation process from the perspective of the patient, and to examine and assess patients' beliefs about their condition and its treatment. There is a need to cultivate an ethos of self management and self efficacy, rather than one that increases dependency upon health professionals because of the limited resources available.

Staff needs must also be addressed. This involves education and training in theory based intervention techniques, with a move away from the didactic approach—knowledge is necessary but not sufficient—and the development of training manuals to allow standardisation of process. Importantly, most health care professionals are not trained to deliver self management courses to patients.

CONCLUSION

Patients' cognitions and emotions feed into their responses to cardiovascular illness and its treatment and can affect the likelihood of attendance at cardiac rehabilitation programmes. Simple interventions can, however, be used to change cognitions. Both anxiety and depression are important following myocardial infarction. A patient's mood should be assessed routinely, with assessments persisting for some time after initial treatment, both in outpatients and in primary care. There is a need to cultivate an ethos of self management and self efficacy, rather than one that increases dependency upon health professionals.

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DISCUSSION

Question: Is there any way of identifying the patients who will get post-MI depression? And is there any way of preventing it developing, because clearly treatment doesn't work?

Professor Newman: Simple screening tools can be used to identify patients and I would recommend that we do that routinely. There is a question about whether we should approach patients with high levels of depression in a different

way to other groups. I certainly don't think we have done it very well and we are in good partnership with our US colleagues who also haven't been terribly successful in dealing with this issue. It is something on which we really need to gain a greater understanding. Looking at these patients' beliefs about what they are capable of doing is one avenue that we should explore, and that would be a more satisfactory route than simply describing their depression and, indeed, assuming that being quite depressed after your MI is normal and will go away. The evidence is that it doesn't go away in many cases.

Question: One of our problems in general practice is trying to work out what is the most cost effective and the best way forward to help our patients. We are bombarded with information from drug companies to give ACE inhibitors, which are extremely expensive, and we don't have much information coming through about the Mediterranean diet. What is the Mediterranean diet? How effective is it? From what I read it seems the Mediterranean diet is much more effective than all the other medical inputs. If we don't have that information, it is difficult to counteract someone who gives us relative risk reductions not absolute risk reductions. So I think that as a working GP, we seem to have an imbalance at the moment at the front, of saying put them on ACE inhibitors but we don't talk about taking exercise and eating fish, because we don't have the information as to how important it is.

Dr Boyle: This touches on the issue of how you persuade people to change their behaviours. It is obviously simpler to write out a prescription than to get people to change the way they behave. There is a huge amount of work going on in terms of how we can develop our nutrition policy and reduce salt in many of the packaged foods and so on, all of which are very important. But there is no getting away from the fact that these therapeutic interventions, the pills, are actually among the most cost effective of any interventions that exist. Smoking cessation is the most cost effective, followed by aspirin, and then statins, pretty well for every other group you may wish to consider right down to relatively low levels of risk. So we cannot deny that, and at the same time it is something that we know we can do. Certainly there are issues of compliance, and maybe we need to be looking at the psychological aspects of that in more detail when we are spending so much money on the drugs side of it. I don't deny at all what you say: if the British weather was all the year round more like the Mediterranean maybe it would be easier to get people to switch to that sort of diet but it does seem to be more of a summer pastime in this country at the moment.

Dr Kirby: We have done quite a lot of work with patients who have got osteoporosis. What we found with that group is they found it very easy to go to the chemist to buy calcium but a lot less easy to take more exercise, particularly weight bearing high impact exercise, and to eat a healthier high calcium diet. I think patients tend to favour the easy way out which is to take the pill. Also, with statins, for example, you can get more than a 30% reduction in cholesterol, whereas however hard they try with their diet, the very best they can do is only 10%; so if you reduce your cholesterol from 7 to 6.3 [mmol/l] that is not very effective but if you bring it down from 7 to 4 [mmol/l] with medication that is extremely effective and much more likely to give the patient benefit. I must say I changed from spending a lot of time talking to patients trying to encourage them to exercise to becoming probably more pro-active with prescribing for this very high risk group of patients.

Professor Newman: I would offer two comments here. The first issue is how one calculates cost: one needs to look at it as a lifetime prescription of a drug compared to an intervention, and perhaps booster sessions, so a re-think over

how we calculate costs is very important. The other issue is that one needs to be careful about posing medication and behaviour change as two mutually exclusive types of intervention. The benefits of exercise and diet are much broader based. We need to look at these two things in combination rather than as alternatives.

Question: Is there a role for aromatherapy and homoeopathic interventions in reducing anxiety and depression following myocardial infarction?

Professor Newman: The evidence is not particularly good for homoeopathic interventions in terms of their mood altering capabilities and relief of anxiety and depression.

Question: I am interested in what you say about the importance of prescribing and perhaps paying less attention to exercise and diet. I am actually thinking about a particular patient I saw last week who had a myocardial infarction a year ago and who has a BMI [body mass index] of 50 kg/m² and a son with a BMI of 30 kg/m². Is there any research or any evidence that if somebody does make the lifestyle changes that that actually has an effect throughout the family?

Dr Kirby: I think this is very interesting because with type 2 diabetes there are now two large studies that show that if you catch people early, you can prevent them progressing from impaired fasting glucose to type 2 diabetes by intensive lifestyle intervention. So we know it can be done. The question that we all debate is actually how to do it in primary care. There are examples of practice exercise programmes and practices where the GPs and nurses have been out on their bikes and running tracks to lead by example, and so on, and they seem to work. So I think if you get enthusiastic about it, lifestyle intervention can be very effective but it takes a lot of work and is very time consuming.

Dr Boyle: Obesity is obviously causing a lot of concern—it is a burgeoning epidemic, though not as great as in the United States where they have got no solutions either. The improvements we are seeing in mortality rates are occurring despite the growth of obesity. There is a great deal that we should be doing, and it is being done. One is to make sure that exercise becomes part of every child's normal day at school. There is at last recognition of the importance of school playing fields and there is a £580 million investment scheme trying to retrieve the situation, much of which has been lost over the past decade, and making sure that sport becomes something for everybody in school. There is also this well known phenomenon of the "drop off" once people leave school, so we need to find ways of sustaining exercise subsequently. Exercise behaviours are changing and the "exercise on prescription" programmes that are being developed are also proving to be quite successful. Early evaluation of the school fruit programme suggests that it is beginning to influence dietary habits at home, and that is also very important. Many of these schools are in deprived areas and many of the homes would not normally expect to purchase fruit at all; the fact that they are beginning to do so is a sign of improvement but it is a long, hard struggle.

Professor Cowie: Professor Newman, can you tell us by what age exercise and eating patterns are established?

Professor Newman: I wish I knew the answer to this. However, I think the real issue is around thinking carefully about what access we have to patients, and having group based models, which is certainly more cost effective than the individual one-to-one system that we have. Going back to the previous question, one of the problems is that we have a short time with the patient who will then go home and may not be in charge of the food and all their activities. Engaging other members of the family to look at family or group based change may be one of the keys to achieving behaviour change. That means we need to change our practice. It means we need to see other groups of people in terms of enacting the

change. The social support, or indeed in some cases the social undermining role, of others is absolutely critical. We need to find some way of dealing with that.

Question: Dr Boyle, you said earlier on there was a bigger skew across class for women to men. Are there any specific reasons for this?

Dr Boyle: No, but I think it does relate to the obesity problem, which in many areas is more prevalent in women, and also the higher incidence of smoking in women, particularly among those in the lower social classes. Women seem to be more prone to the deprivation indices of ill health and should become a real target for action. Recent publicity has been quite influential in terms of getting women to understand that coronary heart disease is a disease

that affects women and is more common as a cause of death than breast cancer.

Question: The reason why GPs are not giving everyone statins is because for years we have been told not to because of worries about our prescribing budgets. Basically, somebody has to give us the message: if there is plenty of money we are happy to put more patients on statins as long as someone is not going to tell us off for doing so.

Dr Boyle: I think the incentive structure within the new contract is such that there should be no deterrent. The money is there to fund it. The new money that is being spent on statins exactly matches the growth money that was put in to account for that in the PCT budgets, so there should be no excuse for any rationing.